

The Engineering Open House -- Its Aims and Values

Perhaps it is a bit hackneyed to start an article with a question -- but to ask "What is the Engineering Open House?" is to ask many questions. Since 1920 the doors of the Engineering Campus at the University of Illinois have been thrown open to visitors from all over the state. People from industry, observers from other universities, high school students and teachers, and hosts of others who perhaps have no direct relationship with engineering but just like to learn "what makes the wheels go round" have attended these exhibitions. Yet to say that the Open House is simply an exhibition is to do a great injustice to those faculty and students whose year-round efforts have made the event so successful. A glance at the record shows that it is much more than an exhibition.

The Open House is the result of some 45 years of evolution. Beginning in the early years of the century, it became the policy of various departments to sponsor "shows" and "open houses" at which times the students and faculty collaborated in demonstrations and lectures. Thus, in 1906 when the Department of Physics held its first annual Open House, the precedent and inspiration for the present-day Engineering Open House was established. This 1906 showing of departmental equipment was held in the laboratories of Engineering Hall, where Physics was then located. The exhibits consisted of displays of apparatus in the fields of light, sound, wireless telegraphy, and other electrical operations, accompanied by lectures on the principles involved. These basic physical concepts have been enlarged upon so that demonstrations of many principles appear today which were relatively unknown in 1906, including those on modern electronics as well as atomic and nuclear physics.

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The next spring, in 1907, the Department of Electrical Engineering organized the Electrical Engineering Show. The purpose was to raise funds in order to contribute to the construction of a memorial in honor of steamboat builder Robert Fulton which was to be erected in New York City. The show was a modest affair which required only a week's preparation at virtually no expense and for which a small admission fee was charged. The results took the originators by surprise, as the 1600 who attended enabled \$250 to be donated to the memorial fund.

Encouraged by this success, the originators held subsequent shows, each a little more elaborate than the preceding. The proceeds were at first used to improve the furnishings of the Electrical Engineering Society reading room in the E.E. Laboratory. By 1913 the attendance had grown to about 3600, a capacity crowd which taxed the facilities of that lab to its limit.

In 1915 an important precedent of dual significance was established by the use of commercial exhibits donated by outside companies as a distinct feature of the Show. Because this addition required much additional space for equipment, the show was extended over three days and several buildings were used besides the E.E. Lab. Subsequent shows up to 1922 followed this same plan. By this time the show had become so enlarged that 450 student workers and demonstrators operating on a \$4,000 budget were required. The show continued to be successful and to return a profit, which was being used to aid the Technograph and other University interests.

In 1924 such national recognition had been gained that commercial organizations and utility companies were eager to exhibit their products. Thus, the Shows from 1924 until the war necessitated termination of the event in 1942 were able to present many unusual and spectacular demonstrations.

Among these, some worthy of note were automatic dial telephone systems, model hydroelectric plants and power transmission lines, radio broadcasting and receiving equipment, television, talking movies, and a list of others too long to enumerate. The proceeds of these Shows were placed in an E.E. student loan fund which is still in existence.

Also worthy of mention is the interest which the Shows had created among the people of the entire state. Started on a campus-wide scale, by 1936 and 1938 they were attracting crowds that ranged from 4000 to 6000 people, who came to the Show in everything from private cars and school or chartered buses to trucks. A large percentage of the guests were high school students and teachers, a fact which enabled the Show's directors to obtain reduced rates on the Illinois Central and Big Four railroads in 1936. Such groups were also assigned student guides who conducted them on tours of the University's campus before taking them through the Show.

In the later years, from 1938 to 1942, the tendency was to demonstrate more of the University's equipment and student work and thus to diminish the commercial flavor. In so doing, students devised many interesting exhibits. Most had a serious purpose, seeking to illustrate some of the latest advances in electrical engineering (though a few were purely for a showmanship purpose).

In the fall of 1914, a few years after the first E.E. Show, members of the Student Branch of the American Society of Mechanical Engineers acted as hosts at the first annual Mechanical Engineering Open House. Some 2000 people representing all departments of the University passed through the displays of students work and demonstrations of machines in operation, and heard talks on subjects concerning the popular mechanics of the day.

Exhibitions held in the following years proved to be even more successful. The attendance reached nearly 5000 persons by the fourth and last M.E. Open House, held in the spring of 1919. During these events, the practice of distributing ashtrays, paperweights and other small mementos as well as the showing of movies had been adopted. Last year nearly 20,000 people viewed displays demonstrating subjects ranging from arc welding to fluid flow studies. Here again, the fundamental engineering principles have been expanded, and reapplied by some 35 graduating mechanical engineering classes, to give spectators a view of the latest model automobile and punch press.

Inspired by the success which these several shows had enjoyed, the first regular all-engineering Open House was held in the spring of 1920, commemorating the centenary of the birth of James Watt. The Physics and M.E. Open Houses were discontinued at this time to give greater chance for success to the all-college venture. The public was invited to inspect the facilities of the Engineering College and to see the displays which had been set up in the laboratories, drafting rooms, and shops. The first Open House Program appeared at this time in the form of a 20-page pamphlet. It briefly described sixty-odd exhibits and contained a map of the engineering campus with a suggested itinerary. This general form has been maintained and is essentially the same layout used today.

Other Open Houses, later called Illinois Student Engineering Exhibitions, were held throughout the years. Students in all departments participated and were guided in their efforts by the Engineering Council. In 1928, the Open House was so scheduled as not to conflict (in year) with the E.E. Shows. Also, the policy was adopted of inviting groups from the high schools of the state, interested persons from out-of-state or other

nearby colleges, and other such groups.

As was true of the E.E. Show, the all-engineering show was discontinued during the war years. During the immediate post-war period the E.E. Show was reorganized and became a definite part of the newly named Engineering Open House. Starting in 1948 and carrying through 1952, the Open House was held biennially. However, following the 1950 show, it was suggested that the Open House be planned as an annual affair. This proposal was accepted by both the Engineering Council and the Executive Committee of the College of Engineering as an experiment in 1952 and 1953. Hence, the 1972 Open House will represent the 21st time that the annual event has been successfully planned. It is therefore well beyond the experimental stage.

Since its beginning in the departmental exhibition, the Engineering Open House has never been planned or executed as a "stunt show" (though some of its exhibits are indeed quite amazing and spectacular). One major purpose has always been to give benefit to the students participating, and it is therefore primarily educational. The long standing goal has been to better acquaint the students and faculty of the College of Engineering and of the other colleges on the campus, as well as the public in general, with the facilities and work of the college. The exhibits are intended to readily demonstrate to the public some of the fundamental principles upon which the science of engineering is based and to point out how the student is equipped to utilize these principles during and after his course of study.

Following the lead of the E.E. Show, outside exhibits such as those from commercial organizations are sought only when they demonstrate the desired concepts more clearly than can student-prepared displays. Never has admission been charged to finance any of the Open House exhibitions.

During the discussion of the evolution of the Engineering Open House, reference was made to the progress in the science of engineering which can be traced by the student exhibits held over the years. This is another important objective which the Open House seeks to realize. Thus, the Engineering Open House is valuable as a means of aiding progress. The exhibits and demonstrations each year attract people from three general groups. The largest group consists of those who have a general interest as citizens of the State. The second group consists of those who are interested in the Engineering College as a center of research and training for future engineers -- i.e., industry. The third group is composed mainly of high school students who have scientific interests and wish to learn whether engineering should become their life's work. The Open House attempts to answer the questions of these groups by annually placing the entire facilities of the College on display.

To the general observer this is impressive and imparts the feeling that he, as a citizen and taxpayer of the State, has had a hand in making this center of technical education and research possible. The industrial person sees students, the engineers of the future, organizing and conducting a large-scale enterprise. He observes that the men involved have had to take into consideration practically all of the factors involved in any industrial and engineering project. Realization of these factors requires organizational abilities and gives the students many opportunities to test their judgment and ingenuity.

First of all, the proper setup of student officers who will be in charge must be established. This selection of student leaders requires careful consideration as to the kinds of ability needed in each office that is to be filled, as well as an analysis of the abilities of the men who are

eligible to fill these offices. Such a project also requires that thought be given to financial and business matters and to the problems of setting up the proper machinery for operation. In addition the exhibits must be selected on the basis of their educational value and public appeal. Advertising and publicity, in the form of printed programs, radio and TV shows, automobile stickers, newspaper articles, speeches and posters, must be carried out. Thus the Open House is an undertaking requiring the time and efforts of many students working together toward a common goal.

All of these things are readily observable to those who care to look "behind the scenes." Here another great educational value is again observed -- the fact that some men discover and perfect abilities of leadership which will serve them well in later work whereas others, though lacking in leadership perhaps, find that they are qualified to handle practical problems as these are encountered. Perhaps most important is the invaluable experience which teamwork provides and the sense of comradeship which it instills in all.

Thus the third interested viewer, the high school student, soon realizes that this is indeed a student enterprise. In the various exhibits he not only sees what the practicing engineer does in any particular field, but he is made aware of how the student engineer is trained to think and act in such situations. Proof of the value of such training is furnished by the show itself. Indeed, no one man could conceive of and execute the many duties and tasks required for a successful Open House; but a group of men, using what they have learned to attack new problems, can achieve this goal. This is that part of the engineering education which is learned not so much in the classroom as outside it in the meeting rooms and around the conference tables.

We've talked a good deal about the Open House -- its history, its

purposes and its achievements. It should be apparent that the "what" of the Engineering Open House is not easily answered for the real answer lies in the work which the participating students carry on. The success of the venture lies with them and challenges their ingenuity and "stick-to-it-iveness." What is considered and applied here is no different from the planning and execution of any engineering undertaking. Thus, when all the problems have been surmounted and the visitors arrive on March 10, 1972, the Engineering Open House again serves as a symbol of the promise and attainment of the engineering profession.